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ABSTRACT

This study describes the assumptions and strategies of the Laboratory School's Linkage Model and evaluates the results of the utilization of the model by focusing on the dissemination of a developmental individualized reading program over a three-year period. The dissemination process resulted in a large number of schools implementing the program, and a high degree of participant satisfaction. The use of teams to provide for collective decision-making and peer-support appears to be crucial in the dissemination strategy for complex programs. (Author/VT)

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A LINKAGE MODEL FOR DISSEMINATION:

ASSUMPTIONS, STRATEGIES AND RESULTS

by

Wellesley T. Corbett, Jr. Hellen I. Guttinger

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College of Education
University of Florida
Gainesville, Florida 32611

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The development of the linkage model and its utilization is the result of the efforts of the entire P. K. Yonge faculty. Under the leadership of Dr. J. B. Hodges, the Laboratory School faculty has produced 16 resource monographs and 23 research monographs in working as a constructive force for educational change. The commitment of the faculty to seek solutions to educational problems while providing a quality educational experience for children is the significant factor in the model. The authors have only described the results of this commitment.

PREFACE

In too many cases the impact of significant research and development upon practice in public schools is minimal. Recognizing this problem, the P. K. Yonge Laboratory School has made dissemination an integral function of its mission, which is to "conduct research and high risk experimentation, sharply focused on the search for solutions to persistent problems in teaching and learning."[1]

The study reported in this monograph represents the School's first attempt to systematically analyze and evaluate its dissemination process. Since findings are positive, it is hoped that it will help to answer the important question of how constructive educational change can be made a product of research and development.

J. B. Hodges, Director, P. K. Yonge Laboratory School and Professor of Education

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[1] "A Study of Campus Laboratory Schools in the State University System of Florida Procedures, Conclusions and Recommendations," Sam Moorer, Chairman. State University System, Office for Academic Affairs, Tallahassee, Florida: December, 1969, p. 4.

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A LINKAGE MODEL FOR DISSEMINATION: ASSUMPTIONS, STRATEGIES, AND RESULTS

INTRODUCTION

The development and understanding of procedures to effectively bring about change has long been a goal of educators. Numerous studies have sought to identify variables or critical factors associated with the successful dissemination and implementation of innovations. Havelock (1971) identified three perspectives into which the majority of dissemination studies could be categorized. Using the strongest elements of each perspective, he developed a linkage model to explain the knowledge dissemination and utilization process. The P.K. Yonge Laboratory School, University of Florida, which has a mission to utilize research and development for improvement of instruction in public schools, has adapted the linkage model in structuring its dissemination process.

The purpose of the present study was to describe the assumptions and strategies of the Laboratory School's Linkage Model and to evaluate the results of the utilization of the model by focusing on the dissemination of the School's developmental individualized reading program over a three-year period.

AN OVERVIEW OF THE LABORATORY SCHOOL'S RESEARCH, DEVELOPMENT, AND DISSEMINATION PROCESS

In accomplishing its mission, the Laboratory School is deeply involved in forming a link between research concerning teaching and learning, and practice in public elementary and secondary classrooms in Florida (Hodges & Fox, 1974). In the development and dissemination of programs for the benefit of public education, a five-stage process is followed:

1. Generating relevant researchable ideas arising out of the faculty's definition of needs and problems within the context of the School's philosophy and objectives.

2. Conducting pilot studies within the Laboratory School in order to test and evaluate proposed programs.

3. Verifying results through field tests in public schools.

4. Informing public schools of the programs and providing staff development.

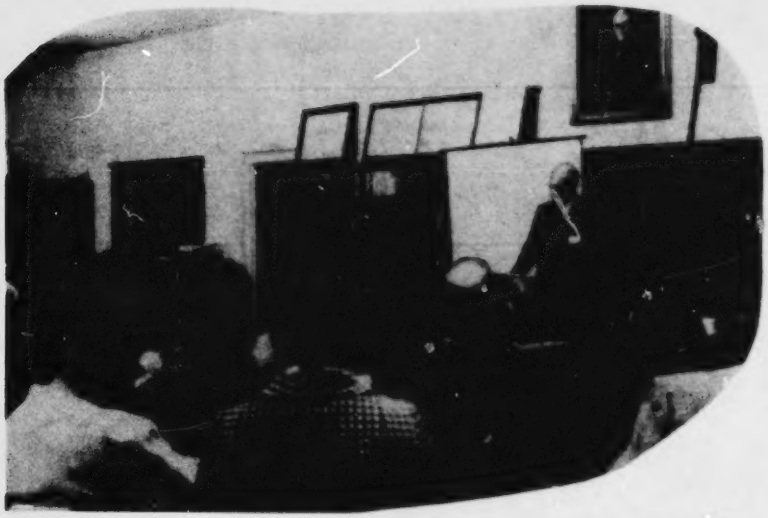
5. Providing maintenance and support activities and receiving feedback on the programs from implementing schools.

An overview of the process according to the phases of research, development, and dissemination is shown in Figure 1.

Research	Development	Dissemination
1. Identify problems and needs	1. Pilot test programs	1. Disseminate findings through research and resource monographs
2. Build research designs	2. Field test programs	2. Conduct Drive-in Conferences
	3. Write results of findings	3. Conduct staff development through workshops and on-site visitations
		4. Continue reciprocal maintenance and support activities

Fig. 1. P. K. Yonge Laboratory School's research, development, and dissemination phases.

THE DISSEMINATION PHASE



Drive-in Conferences

Workshops

Support Activities

DISSEMINATION ASSUMPTIONS

Mutual Need Satisfaction

The programs researched and developed for dissemination at the Laboratory School stem from problems initially identified within the School. Since the School has a student population which parallels that of the State's public schools in terms of socioeconomic characteristics, it is assumed that programs developed will both assist the Laboratory School in improving its own instructional program and have direct relevance to the State's public schools. However, it would be misleading to conclude that the approach views the user as a passive recipient of a program developed at the Laboratory School. It is assumed that each public school or district is best able to identify its own needs, and when those needs coincide with programs developed at the Laboratory School, a cooperative relationship becomes the most suitable mode to link the Laboratory School with the public school.

Support for the above orientation is provided by Miles (1964) and Havelock (1961) . Miles states that effective research and development needs to occur in enriched and protected environments. Havelock stresses the importance of the resource system's ability to recapitulate or stimulate the need reduction cycle of the user. These two factors complement each other in the Laboratory School model.

Simulation of Processes

The Laboratory School provides a unique environment in terms of mission and personnel and has a desirable degree of autonomy in conducting research. At the same time, the ongoing operation of the school provides for a simulation of the users' experiences. According to Miles (1964), these common elements of experience further increase the potential for successful dissemination. He states that dissemination is aided when the circumstances of the innovations' use are congruent with the conditions of the target system (Miles, p. 651). Also, these common elements of experience are likely to provide the potential user with the means to simulate the resource system's processes which may be necessary for the effective use of a program. A modification of Havelock's (1971) Linkage Process in Figure 2 graphically depicts the model used at the Laboratory School.

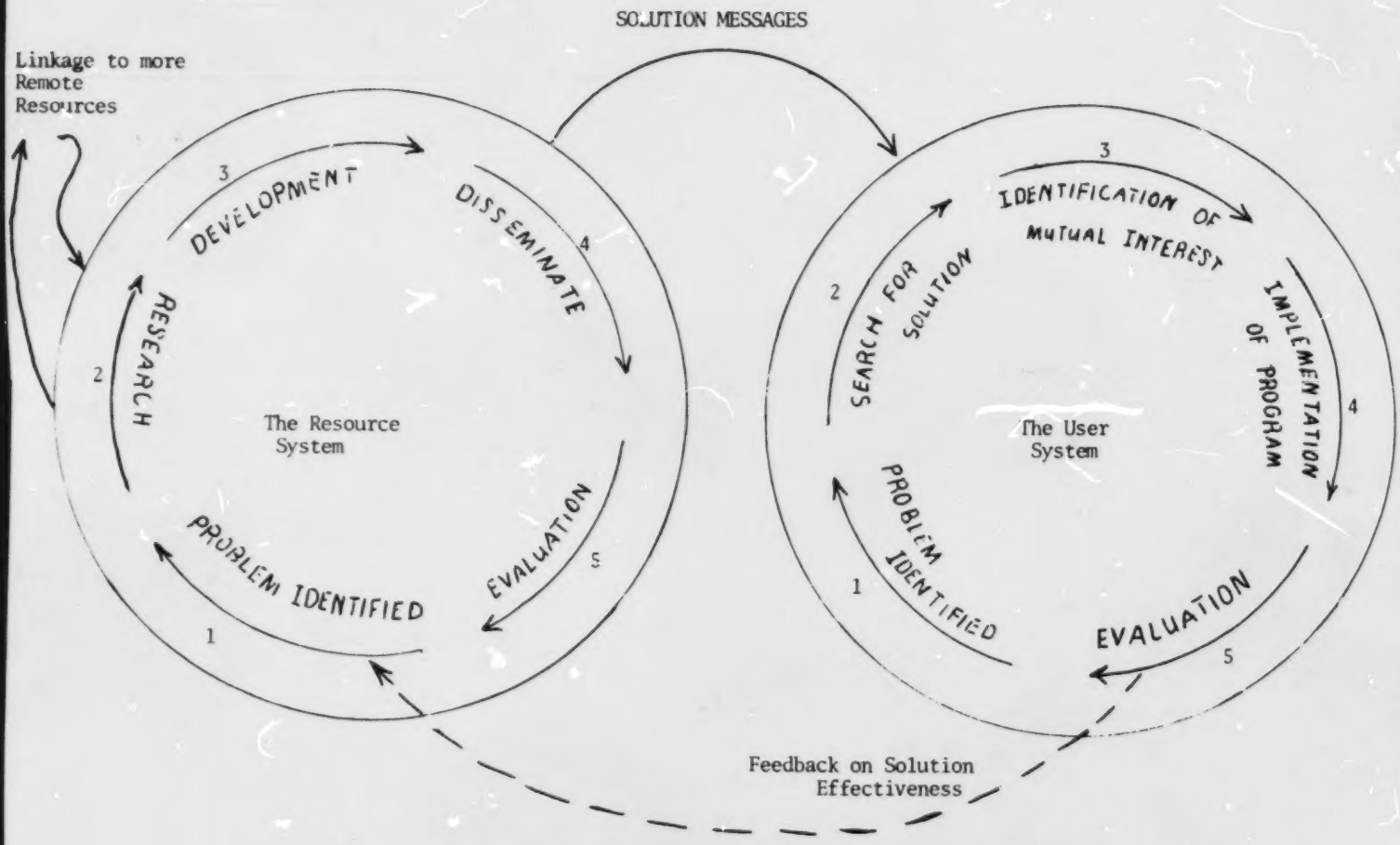


Fig. 2. The P. K. Yonge linkage model
(Adapted from Havelock, 1971)

Effective Communication

Team Participation

Collaborative Relationships

THE DISSEMINATION STRATEGIES

As noted in Figure 1, the dissemination phase includes four steps. The first step involves the distribution of research and accompanying resource monographs to educational leaders in Florida's public schools. Evaluation forms are included in the materials to provide initial input as to the program's relevance, credibility and clarity. The form also provides the link to the second step of the approach, a drive-in conference. Schools and school systems reporting an interest in receiving additional assistance are invited to send educational leadership teams to a one-day, drive-in conference. The conference provides participants with more detailed information and the opportunity to relate the program to their specific school situation. The third step consists of a three- or four-day workshop to further assist those people attending the drive-in conference who are interested in implementing the program in their school or district. The workshops are designed to provide detailed information, skills, and strategies believed to be necessary for the program's implementation. When it is appropriate, on-site visitations are made by the Laboratory School's staff to assist in additional implementation activities. Once a public school implements a program, the fourth step follows in which contact is continued through maintenance and support activities, as well as mutual sharing of concerns between implementing schools and the Laboratory School.

Effective Communication

The dissemination strategy is based upon the belief that effective communication is essential to the dissemination process and that effective communication occurs when the user has identified a need or problem which may be satisfied or resolved through a Laboratory School program. This approach is evident in Havelock's Linkage Model (1971) and has been stressed by numerous authors (Lippett, Watson & Westley, 1958; Miles, 1964).

The importance placed on effective communication is seen throughout the four-step dissemination process. The link between the Laboratory School and the public school is established through interaction between teacher-program developers or project directors and interested public school personnel. This, as well as the opportunity to visit the Laboratory School and actually observe the operation of a program, provides the potential implementor with direct communication with the initiator of change. During the visitation, the potential implementor is free from intermediate personnel of the home district who

could alter or screen-out important sources of information. Evaluative judgments are facilitated by direct observation and communication.

Team Participation

Following the guidelines and suggestions of numerous authors including Miles (1964) and Rogers (1971), the dissemination strategy attempts to take advantage of involving persons in authority, providing for collective decision-making, and facilitating peer-support. The conference and workshop invitations request team participation with teams preferably consisting of a classroom teacher, a principal, and a central office instructional supervisor. This provides the school or district with a different organizational arrangement or structure for decision-making than is typically found within a district. The intent is to facilitate the teams' independence from traditional and possible anti-innovative norms. It also provides for the establishment of positive interpersonal relationships between persons making political, financial, and evaluative decisions concerning the implementation of the program. With this approach, decisions to implement are not totally dependent upon the creation of future structures to deal with questions of support from people not familiar with the program. The opportunity for collective decision-making enhances the likelihood of satisfaction concerning the decision to implement.

Maintenance Activities

As stated earlier, the dissemination strategy does not end with the implementation of a program by the public school. A collaborative relationship is continued and is integral to the linkage process. Continued contact between the Laboratory School and the public school often leads to the identification of new problems in which the Laboratory School may provide assistance through current or previously conducted research. The Laboratory School receives vital feedback from the public school which is necessary in assessing its research, development, and dissemination effort. The problem solving efforts and the ability of the public schools to simulate the Laboratory School's processes is enhanced by involving teachers, principals, and supervisory personnel from schools implementing programs as staff members in later dissemination conferences and workshops.

The Laboratory School (or resource system) and the public school (or user system) thus become capable of simulating each others' processes--the resource system can place itself in the role of the user and relate to the user's needs and problems, and the user can place itself in the role of the resource system and relate to its program development and evaluation. The sequence of events in the P. K. Yonge Linkage Model is shown in Figure 3.

THE MODEL IN ACTION

The elements of the linkage model can be examined by studying the Laboratory School's developmental, individualized secondary reading program. During the six-year history of the reading program, the steps in each of the research, development, and dissemination phases have been followed (though not in the exact order presented). The reading program provides a concrete example for evaluating the assumptions, strategies, and results of the model.

The Problem

In the Spring of the 1969-70 school year, after extensive diagnostic testing of students, teachers at the Laboratory School recognized a need to improve reading at the middle and high school levels. After exploring several approaches to reading for secondary students, a developmental, individualized reading laboratory approach, modeled after the University of Florida's Reading and Study Skills Center, was decided upon as the most appropriate model.

The program was viewed as being consistent with the philosophy and objectives of the School. It was based on the premise that growth in feelings of self worth, adequacy, and confidence are more conducive to the learning process than the direct teaching of reading. It avoided the problem of labeling students as poor readers, inherent in remedial programs, by involving all students at a given grade level. Emphasis was placed on diagnostic reading procedures followed by the student's establishing goals and receiving assistance in developing an individualized program focusing on needs the student considered to be important (Guttinger, Hines & Larsen, 1972, p. 4).

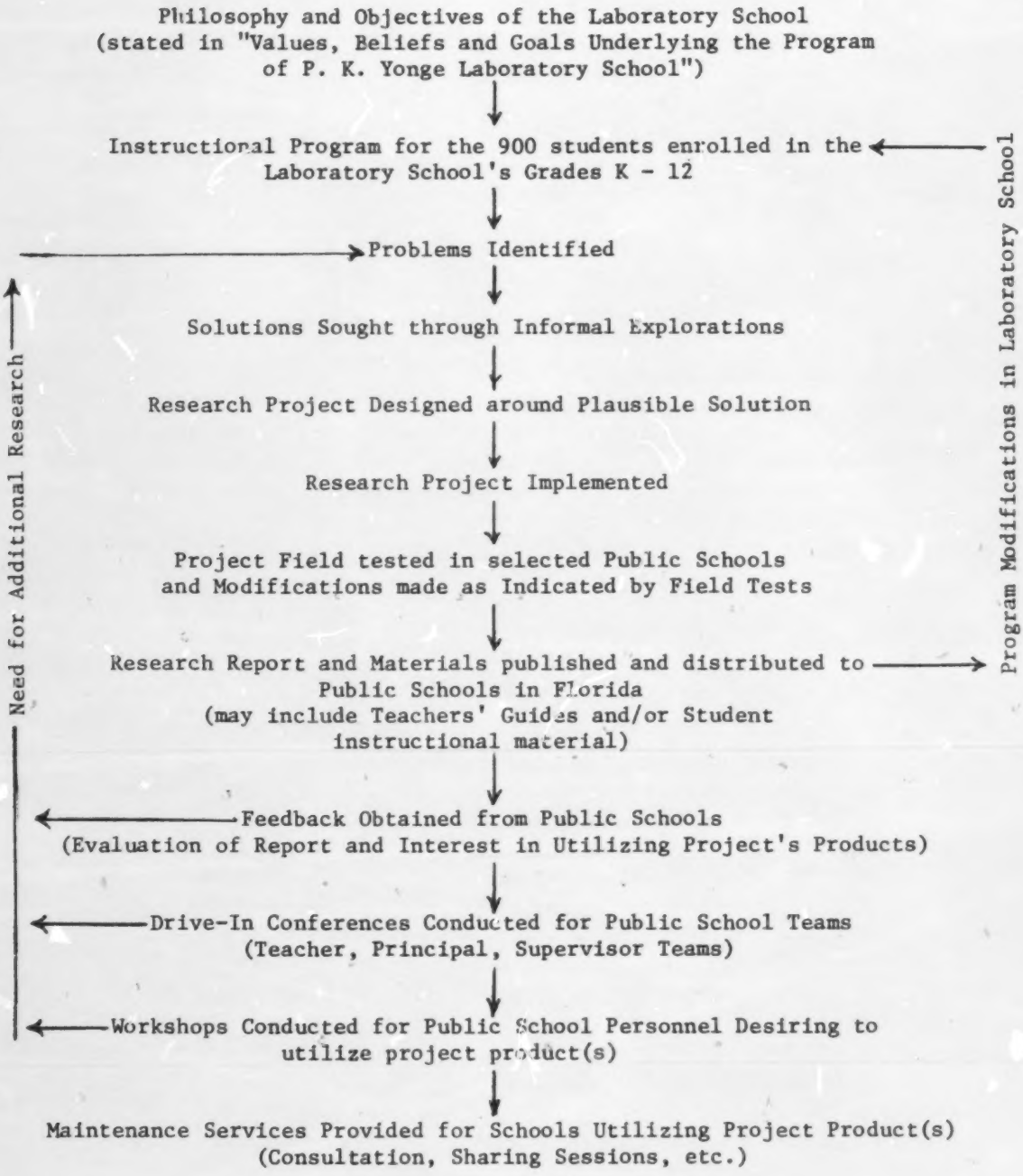

Philosophy and Objectives of the Laboratory School
(stated in "Values, Beliefs and Goals Underlying the Program
of P. K. Yonge Laboratory School")
Instructional Program for the 900 students enrolled in the
Laboratory School's Grades K - 12
Problems Identified
Solutions Sought through Informal Explorations
Research Project Designed around Plausible Solution
Research Project Implemented
Project Field tested in selected Public Schools
and Modifications made as Indicated by Field Tests
Research Report and Materials published and distributed to
Public Schools in Florida
(may include Teachers' Guides and/or Student
instructional material)
Feedback Obtained from Public Schools
(Evaluation of Report and Interest in Utilizing Project's Products)
Drive-In Conferences Conducted for Public School Teams
(Teacher, Principal, Supervisor Teams)
Workshops Conducted for Public School Personnel Desiring to
utilize project product(s)
Maintenance Services Provided for Schools Utilizing Project Product(s)
(Consultation, Sharing Sessions, etc.)
Need for Additional Research
Program Modifications in Laboratory School

Fig. 3. A model for educational change through R & D at the P. K. Yonge Laboratory School. (Hodges and Guttinger, 1975)

The Pilot Test

The program for pupils, the research design, and data collection plans were completed during the spring of 1970. After a trial period with small numbers of students during the summer session, the program was officially implemented in the fall of 1970. A total of 272 students from grades six, eight, nine, and eleven were involved in the pilot study. Comparisons were made between experimental and control groups and between volunteer and compulsory participants on measures of reading rate, story and paragraph comprehension, word recognition, and vocabulary. The study found significant gains of the experimental groups on combined comprehension and vocabulary scores at some grade levels, and significant gains in rate, comprehension, and vocabulary for eighth grade volunteers. Upon conclusion of the study, a research monograph (Guttinger, Hines & Larsen, 1972) was written to describe the study, inform public schools of the results, and propose workshops which would be helpful to others in implementing the program.

The Field Tests

Two field studies were made to test the effectiveness of the developmental individualized reading laboratory program in the public school setting. Starting in the fall of 1972, a study (Guttinger & Hines, 1977) was conducted at a rural high school, and in the fall of 1973, a study (Guttinger, 1974) was conducted in the middle grades of two schools in two additional Florida counties. Pre-post measures of reading rate, comprehension, and vocabulary were compared for experimental and control groups. The studies found that students in the experimental or reading laboratory program made significantly greater gains in comprehension and reading rate.

The Conferences and Workshops

Since the distribution of the first research monograph (Guttinger, Hines & Larsen, 1972), public school personnel have responded to invitations to four drive-in conferences held at the Laboratory School and in three other districts in the State. For those school personnel seeking additional information and assistance following the drive-in conference, three- or four-day workshops were provided. As shown in Table 1, a total of 63 conferences and workshops have been held involving 2,440 participants from 57 Florida districts and ten additional states. In many cases participants in one- and two-day conferences also attended the three- or four-day workshops.

TABLE 1
Conferences and Workshops Summary Data: May 1972-February 1977

Number	Duration	Participants	Districts
15	1-day	649	39
13	2-day	574	8
19	3-day	550	16
16	4-day	667	39
63	162 days	2440	57* & Georgia Tennessee W. Virginia N. Carolina Kentucky New York Connecticut Michigan Illinois Louisiana

*Many districts participate more than once thus the total number of districts involved is not the sum of districts attending conferences and workshops.

The workshops were held at the Laboratory School or in the district school systems and were coordinated by Laboratory School reading personnel. In addition to Laboratory School personnel, the workshop staff included various faculty members of the College of Education and the Reading and Study Skills Center and representatives of public schools who had implemented the reading program.

The purpose of the workshops was to provide participants with an understanding of the basic components of the developmental, individualized reading laboratory approach and help them adapt the program to meet their own specific needs. Basic components inherent in implementation of the reading laboratory program for students included: group pretesting; individual goal-setting conferences; the planning of an individual program based on the improvement of reading skills considered important by the learner; the carrying out of the program in an

PARTICIPATION IN THE READING WORKSHOP

Taking Tests

Working in the Reading Lab

Observing Students

individualized laboratory setting; group posttesting; and final individual evaluative conferences. Also involved was the promotion of the teacher-counselor role in which all persons in the laboratory endeavor to have each student experience acceptance and positive regard.

The workshops attempted to communicate these components as well as the philosophy and methodology of the program for students through personal involvement of workshop participants. One major aspect of the workshops consisted of having participants go through the experience of being students in the developmental reading laboratory at their own level of competence. This included experiencing being tested, setting goals, and developing a personal program for reading improvement. Case study evaluations and role playing were used to simulate an understanding of the teacher-counselor role. To further the individualized approach to reading, personality influences in learning were analyzed by having each participant respond to the Myers-Briggs Type Indicator (Myers, 1962) and receive feedback.

The mechanics of running a developmental reading laboratory were also included in the workshop. Techniques of administering tests, record keeping, program planning, and the setting up of individual folders were discussed.

The workshop's final session involved a discussion of the relative place of the reading laboratory within the total school curriculum, suggestions of strategies for implementation, and evaluation of the workshop. Personnel from districts that had implemented the program shared their experiences with participants and assisted other districts in the development of an implementation plan. Participants evaluated the workshop in terms of their personal goals. This data was used as a basis for revision and modification of future workshops and provided an ongoing means of evaluating the workshop portion of the dissemination strategy.

The Implementation

Schools within 30 districts in Florida and Georgia have implemented the developmental, individualized reading program. As shown in Table 2, the majority of implementations have occurred since 1974. The number of implementations have increased with each subsequent year.

TABLE 2
Dissemination of Developmental Individualized Secondary Reading Laboratories by District and Year

Districts	1970-72	1972-73	1973-74	1974-75	1975-76
FLORIDA					
P.K. Yonge	1				
Alachua				5	
Bradford				1	
Brevard					1
Broward			1	1	1
Charlotte				1	2
Citrus			1	1	
Clay			1	2	
Columbia		1			
Dade				1	2
Duval				1	2
Escambia				1	
Franklin					1
Hendry					2
Hernando					1
Hillsborough					1
Madison					1
Manatee					3
Marion		1	8	2	
Okeechobee				2	
Orange					3
Osceola					3
Palm Beach				9	12
Polk					2
Putnam					1
Santa Rosa					1
Sarasota					1
Suwannee					1
Union					1
Volusia					1
GEORGIA					
Fulton					3
Total	1	2	11	27	46
Cumulative Total	1	3	14	41	87

The Continuing Link

After implementing the developmental reading laboratory, many schools have requested additional information and assistance in order to assess the results of the program. In response to this need, phase-two workshops were begun in 1973. The intent of these workshops was to enhance the ability of public school personnel to simulate the process of the Laboratory School and maintain the link between resource and user systems. The workshop sessions consisted of instruction in research methodology, small group sharing time and group problem-solving time for teachers and administrators.

RESULTS: AN ANALYSIS OF THE EFFECTIVENESS OF THE MODEL IN ACTION

One measure of the effectiveness of the Laboratory School's Linkage Model may rest in the number of implementations by public schools. It would not be unreasonable to expect only a small percentage of interested districts to implement the reading program since it required large amounts of money and time as well as the coordination and cooperation of numerous personnel within each district. However, as shown in Tables 1 and 2, 57 districts participated in workshops or conferences, and 30 districts had one or more schools implement a reading program. This figure appears quite high given the complexity of the program.

Participant Goal Achievement

In addition to the number of implementations, the degree to which the dissemination strategies met the needs and interests of the participants in the workshops was another measure used in the analysis of the effectiveness of the model. Since many factors affect the decision to implement, the fact that all participating districts do not have schools implementing the reading program does not necessarily imply that the program is viewed by the non-implementing district as one which could not meet their needs.

A measure of need satisfaction was obtained through an analysis of participant's evaluations of the three- and four-day workshops. Since February 1974, participants in the first session of each workshop identified their personal goals for the workshop. Upon conclusion of the workshop, they specified which of their goals were achieved.

Participant's evaluations of workshops held at the Laboratory School from February, 1974, to May, 1975, were selected for analysis in the present study. Each participant was classified as being an administrator or teacher, implementor or non-implementor, and team member or non-team member. As seen in Tables 3, 4, and 5, the mean percentage of goals achieved was 89 or higher for persons in all categories examined.

TABLE 3
Mean Percentage of Goal Achievement
for Administrators and Teachers

Participant Classification	N	Mean Percentage of Goals Achieved	F Values
Administrators	160	89	1.45
Teachers	140	91	

TABLE 4
Mean Percentage of Goal Achievement
for Implementors and Non-implementors

Participant Classification	N	Mean Percentage of Goals Achieved	F Values
Implementors	142	91	1.11
Non-implementors	58	90	

TABLE 5
Mean Percentage of Goal Achievement for Team Members
and Individual Participants

Participant Classification	N	Mean Percentage of Goals Achieved	F Values
Team	164	91	1.00
Individual	36	91	

No statistically significant differences were found within any category. Both teachers and administrators on the average had nearly 90 percent of their goals achieved. There was only one percentage point difference between implementors and non-implementors and members of teams reported the same average percentage of goals achieved as did non-team participants. Most participants found nearly all of their goals to be satisfied and mean percentage of goal achievement did not discriminate between any pairings. Thus a high degree of participant satisfaction with the workshop experience is evident.

Teams

Another aspect of the dissemination process involved the use of teams representing administrative and instructional personnel as an integral part of the workshop experience. It was assumed that schools represented by teams would be more likely to implement the reading program than schools sending individual participants. An analysis of the number of team and non-team implementations indicates that this assumption was correct. As seen in Table 6, schools with team representation had significantly more implementations than schools with individual representation. Fifty-two of the 64 schools with teams attending workshops from February, 1974, to May, 1975, implemented the reading program while only one of the 61 schools with individual representation implemented the program. This finding is especially interesting in terms of the high degree of goal satisfaction expressed by both team and non-team participants. It appears that team participation is essential to the implementation of the reading program.

TABLE 6
Chi-Square Analysis of Team and Non-Team
School Implementations (N=125 Schools)

Classification	N	%	df	X^2
Team				
Implementor	52	81.3		
Non-implementor	12	18.8		
Non-Team				
Implementor	1	1.6	1	77.8*
Non-implementor	60	98.4		

*$p \leq .01$.

DISCUSSION

The P. K. Yonge Laboratory School, charged with the mission of research and development for the improvement of instruction in public schools, has taken the elements of the R & D process and incorporated them into a linkage model. The model is grounded in empirical research and works to satisfy the mutual needs of the resource system and user system through facilitating cooperative involvement of collaborating institutions. This, in turn, provides for effective communication and promotes the dissemination of programs.

The linkage model used at the Laboratory School has been shown to be highly effective in the dissemination of a complex innovation--the developmental, individualized reading program. The dissemination process resulted in a large number of schools implementing the program. The dissemination strategies resulted in a high degree of participant satisfaction.

The study supports key elements identified in previous research as being related to effective dissemination. The use of teams to provide for collective decision-making and peer-support appears to be crucial in the dissemination strategy for complex programs. The findings of the study are especially valuable in meeting the need to constructively change educational programs and practices through research, development, and dissemination.

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